Department of Conservation & Recreation

CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

Dam Safety Fact Sheet 1: Rodent Control on Earthfilled Dams

For earthfilled dams the three most destructive rodents are the groundhog (woodchuck), muskrat and beaver. These animals are attracted to the environment created by a dam and reservoir. The burrowing habits of the groundhog and muskrat may threaten the integrity of an earthfilled structure. Beavers attempt to dam up principal and emergency spillways and may even try to raise the elevation of the dam.

GROUNDHOG

The groundhog is the largest member of the squirrel family. This animal will burrow in from the downstream side of the dam staying above the phreatic line (the upper surface of seepage) so as to remain dry. The burrow will have many tunnels and chambers and always more than one entrance. Occupied burrows are easily spotted as the groundhog continually removes dirt from the den so that fresh dirt is visible on the surface of the dam.

Controlling a groundhog infestation should commence in early spring when burrows are active and easy to find. If control measures are delayed other game animals may be damaged as during the fall and winter they may take refuge in the groundhog burrow. Fumigation is one of the most effective methods of controlling groundhog population. However, around buildings or in a high fire hazard area trapping or shooting may be a better approach. It has also been noted that a well-cleared and mowed dam discourages inhabitation.

MUSKRAT

The muskrat is a small stocky rodent with rich dark brown fur. Muskrats are chiefly nocturnal. Muskrat dens are constructed by burrowing into the banks of lakes and streams. These burrows start from six to eighteen inches below the water surface and the tunnel then rises to above the phreatic surface. Thus the burrow starting from the reservoir side offers a path for water flow, and can seriously weaken the embankment. It becomes even more hazardous when a muskrat den on the upstream side is close to a groundhog den on the downstream side. If the earth partition between these dens should fail there is a conduit completely through the dam.

A successful method for eliminating the muskrat burrow is to place rip-rap on the upstream face of the dam. This rip-rap should start about three feet beneath the surface. As the muskrat attempts to burrow the rip-rap will collapse into the excavation and discourage the attempt. Heavy wire fencing lain in a similar manner will accomplish the same result. However, rip-rap slows wave erosion on the upstream face of the dam and thus has a two-fold value. Also, removal of vegetation along the shoreline will discourage habitation. Trapping may also be considered as a method of eliminating the muskrat.

FILLING THE BURROW

One method for back-filling the burrow is called mud-packing. This method consists of placing one or two lengths of metal stove or vent pipe vertically over the burrow. When the pipe is properly sealed a slurry of 90% earth and 10% concrete, plus an appropriate amount of water to make the slurry flow, is placed in the pipe and allowed to flow into the burrow. The last six inches is filled with dirt that will support grass growth.

BEAVERS

Beavers will plug spill ways and have even been known to try to raise the elevation of a dam. This kind of activity can lead to the overtopping of the dam. Removal of the cuttings will remove the problem, but only temporarily. Beavers are not easily discouraged and they will continue to build. Some success has been obtained by placing electrically charged wires in spillways. If the dam is frequented by the general public this might not be a good idea, and of course trapping is always an alternative.

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